REMARKS/ARGUMENTS

In view of the foregoing amendments and following remarks, favorable reconsideration is respectfully requested.

Status of the Claims

Claim 23, 25-27, and 29-30 are pending.

Claim 23 has been amended to recite that the organic precursors are selected from acrylic acid, methacrylic acid, aminopropymethacrylamide, aminohexylmethacrylamide, or cyclic monomers bearing protic groups. See, for example, Claim 26.

Claim 26 has been canceled.

Claims 25 and 30 have been amended in order to limit the vinyl monomers to acrylic acid, methacrylic acid, and aminohexylmethacrylamide.

Prior Art Rejections

Claims 23, 25-26, and 29-30 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Bertrand, International Publication No. WO 2002/098926, in view of Stirling (Advanced Marerials, 2000, 12, No. 16, p. 1161-1171). Claim 27 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Bertrand, Stirling, and U.S. Patent No. 4,691,045 to Fukuchi.

In order to establish a *prima facie* case of obviousness, the combination of references must disclose each and every claim element. Applicants respectfully submit the combination of Bertrand with any one or more of Stirling or Fukuchi fails to disclose each and every element and therefore the cited art does not render the claimed invention obvious. Specifically, the combination of references fails to disclose or suggest the recited organic precursors, namely, acrylic acid, methacrylic acid, aminopropymethacrylamide, aminohexylmethacrylamide, and cyclic monomers bearing protic groups, as recited in Claim 23.

Bertrand describes a process for depositing by electro-grafting a strong adherent polymer coating onto an electrically conductive surface comprising an electro-chemical grafting at the surface of an active monomer comprising a reactive functional group for the attachment of a molecule having at least one complementary reactive group. The electro-grafted coatings

disclosed in Bertrand allows the attachment of small molecules such as proteins, peptides, oligonucleotides, dyes, drugs and anti-bacterian compounds.

It appears that none of Bertrand, Stirling, or Fukuchi describes or mentions the use of the specific monomers of the amended Claim 23 (e.g.,. acrylic acid, methacrylic acid, aminopropylmethacrylamide, aminohexylmethacrylamide, and cyclic monomers bearing protic groups).

Indeed, the Applicant wants to draw the attention of the Examiner to the fact that the cyclic monomers discloses in Bertrand. (page 9, lines 1 to 4: lactones and lactides such as e-caprolactone (...)) are all exempt from protic groups, and as a consequence do not read on or otherwise suggest the monomers of amended Claim 23.

Hence, Bertrand never mentions that the monomers used for a polyaddition via a ring polymerization (ROP) have to bear protic groups. And the absence of such specific protic groups on the active monomer necessarily involves an additional activation step, after the electro-grafting of the monomers, in order to liberate the functional groups of interest which allow the immobilization of molecules of interest or objects bearing a complementary function. Consequently, in this case the immobilization is **indirect.**

Besides, it emerges from the examples of Bertrand that all of the active monomers implemented in this document do not allow a direct immobilization of the molecules of interest, and said monomers must have to be subject to a subsequent reduction reaction, before reacting and immobilizing the molecules of interest on the surface of the solid support.

More particularly, it appears from the Example 1 of Bertrand, which implements a monomer exempt from protic groups, i.e. the c-caprolactone, that this monomer is only used as a precursor, the ethyl ester functions of the ecaprolactone having to be reduced into aluminium alkoxide groups by reaction with diisobutyl aluminium hydride (DiBA1H), before being able to attach molecules of interest or objects bearing a complementary function (see also the Scheme 1 of Bertrand.).

Now, the presence of protic groups on the organic precursors leads to several advantages, and more particularly to a **direct immobilization** of molecules of interest or objects bearing a complementary function on the surface of the solid support, without implementing a subsequent

step of activation of the functional groups of interest borne by the electro-grafted organic film.

Consequently, these fundamental difference leads to a solid support which can readily and rapidly react with molecules of interest or objects bearing a complementary function, without needed a subsequent reduction step, after the electro-grafting step (as it is the case in the examples of the prior art document of Bertrand), the presence of acrylic acid, methacrylic acid, aminopropylmethacrylamide, aminohexylmethacrylamide, or cyclic monomers bearing protic groups, allowing the acceleration of the attachment of the molecules of interest on the solid support, while improving the inorganic/organic interface between the functionalized electrically conducting or semiconducting support and the functional molecules of interest.

Therefore, the combination of all the features of the amended Claim 23 was absolutely not obvious to a man skilled in the art, none of the cited prior art documents disclosing the use of acrylic acid, methacrylic acid, aminopropylmethacrylamide, aminohexylmethacrylamide, or cyclic monomers bearing protic groups in combination with the presence of at least 90% of functional groups of interest accessible, and with a density for the accessible functional groups of interest comprised between $10^4/\mu m^2$ and $10^{10}/\mu m^2$, in order to obtain such an advantageous solid support.

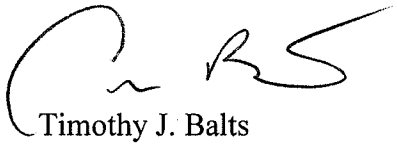
Consequently, the disclosure of Bertrand even in combination with the teaching of Stirling, or Fukuchi, does neither anticipate the solid support of the present Invention, nor does teach or render obvious the present Invention to a man skilled in the art. Accordingly, Applicants respectfully submit that the combination of references fails to disclose or suggest each and every element recited in amended Claim 23 and therefore the Examiner has failed to establish a *prima facie* case of obviousness.

In view of the foregoing amendments and remarks, it is respectfully submitted that the rejections under 35 U.S.C. § 103(a) have been overcome, and the claims are in condition for allowance.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required

therefor (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



Timothy J. Balts
Registration No. 51,429

Customer No. 00826
ALSTON & BIRD LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel Charlotte Office (704) 444-1000
Fax Charlotte Office (704) 444-1111

ELECTRONICALLY FILED USING THE EFS-WEB ELECTRONIC FILING SYSTEM OF THE UNITED STATES PATENT & TRADEMARK OFFICE ON July 12, 2010.